Section 2 – Earth Resources

Figures (provided following the text)

Tables

Appendices

List of Acronyms and Abbreviations – Section 2

AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
CFR	Code of Federal Regulations
CVE	Cricket Valley Energy Center, LLC
ESA	Environmental Site Assessment
g	earth's gravity acceleration
HREC	Historic Recognized Environmental Condition
MCEER	Multidisciplinary Center for Earthquake Engineering Research
msl	above mean sea level
NYSDEC	New York State Department of Environmental Conservation
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
Project Development Area	The 57-acre portion of the 131-acre Property proposed for development
Property	The 131-acre property optioned by CVE
REC	Recognized Environmental Condition
SPCC	Spill Prevention Control and Countermeasure
SPDES	State Pollutant Discharge Elimination System
USDA	U.S. Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
Z	seismic zone factor

2. EARTH RESOURCES

This section describes the geologic setting for the Cricket Valley Energy Center, LLC (CVE) project, including: existing structures and conditions associated with historical use; topography and slopes; soils; depth to bedrock; depth to groundwater; and the seismic setting. A map showing topographic contours of the Property and surrounding area is provided as Figure 2-1.

2.1 Applicable Laws, Regulations, and Policies

Regulations potentially applicable to information addressed in this section include 6 NYCRR Part 360, which addresses solid waste management facilities; Part 364, which addresses waste transporters; Part 370, which addresses hazardous waste management systems; Part 371, which addresses identification and listing of hazardous wastes; Part 372, which addresses hazardous waste manifest systems, as well as transportation of hazardous materials; and Part 376, which addresses land disposal. In addition, surveying, identification, removal and abatement of asbestos-containing materials would be covered by 12 NYCRR Part 56. Evaluation of site conditions is important to understand former or current conditions potentially requiring special consideration or review. National building codes address the construction of structures in certain seismic zones and draft seismic provisions have been prepared to support the New York State Uniform Fire Prevention and Building Code. These provisions have not yet been incorporated into the code; however, at the time of construction, the project will be built to meet all applicable building codes, including seismic provisions.

The Town of Dover regulations address erosion and sedimentation control, blasting, and the disposition of demolition materials. The Town Board's Special Permit and Site Plan Approval process will address these requirements.

2.2 Existing Site Conditions

2.2.1 Existing Development and Recognized Environmental Conditions

As discussed in Section 1.2, project activities will be restricted to the approximately 57-acre previously developed portion (the Project Development Area) of the 131-acre parcel (the Property). The Project Development Area is located to the east of the Metro-North Railroad rail line. This portion of the Property has a long history of industrial use and numerous dilapidated, vacant industrial structures and associated debris are located in that area. Within the Project Development Area, approximately 30 acres will be developed. By limiting

the Project Development Area to the portion of the Property already altered by past industrial uses, the extent of change to the site and its surroundings will be minimized. No project activities are proposed on property that lies to the west of the rail line that transects the site.

The site was previously used for refining magnesium from local ore (between 1932 and 1966). The Mica Products Corporation operated at the Property from 1966 to 1980 and assembled various products requiring lamination of wood bases (laminating Formica onto particle board). Portions of the Property were later used by Poly Tech Recycling Corporation for tire recycling operations (between the early 1990s and January 1, 1996; at which time a fire destroyed the majority of the main site building), and Carbon Activation US Inc. for the reactivation of carbon.

2.2.1.1 Descriptions of On-Site Structures

Further descriptions of the current site buildings (shown on Figure 1-4) and their surroundings are presented below. Photographs of these conditions are included in a log as Appendix 2-A.

Building A – Office Building – Building A is a one-story office building located off the entrance road at the eastern side of the property. The building is wood-frame construction with wood siding and an asphalt shingle roof. The building is in disrepair, with broken windows, peeling paint and other dilapidated conditions. A portion of the land surrounding the building is enclosed by a chain-link fence.

An approximately 500-gallon aboveground storage tank (AST) was noted at the rear (west) side of the building. When observed, this tank was empty and no evidence of leaking or staining on surrounding soils was evident.

Building B – Concrete Block Building – Building B is a one-story concrete block building located to the northwest of Building A. The building is concrete block construction with a wooden roof, although the roof has collapsed. A brick chimney is located in the approximate center of the building footprint. The building is in disrepair, with both the interior and exterior overgrown with vegetation.

A large (approximately 24-inch) clay pipe was observed at the northern end of the building, near the roof. A portion of this clay pipe also lay on the ground adjacent to the building. The purpose of this pipe, and the building, is not known.

Building C – Main Building – Building C is the largest and considered the main building at the site. This building extends from the northern to southern end of the developed portion of the site, located approximately in the center of the remaining buildings. The building is three stories in height, and is concrete block construction with corrugated transite roof and concrete slab floor. As a result of the 1996 fire, the northern portion of the building is collapsed, with no roof or walls present (mangled metal and concrete blocks are sporadic).

The interior of the northern portion of the building is open, with miscellaneous materials scattered individually and in bulk throughout the first floor. These include metal piping, wood pallets, empty 55-gallon drums, ash/wood fragments, old machinery, wiring, brick, and general household trash. A white precipitate material was observed seeping from the second floor to the first floor. This precipitate appears to be minerals that have leached from the concrete floor since the 1996 fire.

The second floor was observed to be open to the building roof. Numerous ceiling tiles were observed to have fallen and remained on the concrete floor of this second level.

At the approximate mid-point of the building, on the eastern side, is a two-story concrete block office annex. Additionally, adjacent to this office annex (and at a location near the access road to the Property) an electrical pole with three transformers was observed. These transformers appeared to be relatively new.

The southern end of Building C is largely intact, as compared to the northern portion. Evidence of dumping within the building footprint was noted (couches, barbeque grills, children's toys, tires and other household debris were observed near the southern end). Three overhead garage doors are located at the southwestern corner of the building. A piece of apparent air filtering equipment is located outside of the building, immediately adjacent to the exterior wall along the western side.

This portion of the building also contained numerous 55-gallon steel and cardboard drums, many of which appear to contain activated carbon, as well as several large bags of activated carbon. Additional materials present in the southern end of the building included welding canisters, plywood, tires, and empty, overturned ASTs. No evidence of leaking or staining on surrounding concrete surfaces was observed.

Building D – Building Connection – Building D is a structure which connects Building C with Building E (as shown on Figure 1-4). The eastern portion of Building D is three stories high and constructed of concrete block with a metal frame roof (this construction is identical to that of Building C). The western portion of the building is a one-story concrete block

building. The interior of Building D contained similar debris observed in the southern end of building C, including empty 55-gallon drums, foam insulation, and wooden pallets.

Building E – Manufacturing Building – Building E is located parallel with Building C, and is connected to that building via Building D (as shown on Figure 1-4). This building is the second largest structure on the site (after Building C), and appears to have supported historical manufacturing processes.

Throughout its length, the building varies in height from two to six stories, with a mixed construction of primarily concrete block and steel. The southern end of the structure is five to six stories high, and is comprised primarily of two large cylindrical structures (apparently kilns) and two brick chimneys.

The interior of the building contained miscellaneous debris, including stacks of wooden pallets and foam insulation. A copier, large tires, empty 5-gallon oil pails, empty 55-gallon drums, empty drums labeled as "liquid potash," and several large soil piles were also present within the building.

At the southern end of the building, an approximately 20,000-gallon AST was observed, empty and lying on its side. Miscellaneous 5-gallon pails, wood and concrete debris, and a flat-bed trailer were also noted at the southern end of Building E.

Building F – Storage Building – Building F is located in the southwestern corner of the developed portion of the site, adjacent and parallel to Building E. Building F is a long, one-story concrete block building with a wooden roof. This building appears to have been used for storage. There is a concrete ramp at the northern end of the building with a small dock, and a large overhead door at the southern end. The building was observed to be in generally good condition, with some vegetative overgrowth around the perimeter of the building.

The interior of the building was observed to contain general debris. Outside of the building, several abandoned trucks and machines were parked in a grassy area to the west.

Building G – Concrete Block Building with Steel Chimney – Building G is located to the west of Building F, and is a one-to-two-story concrete block building. A steel chimney is located at the northern end of the building. The building is in disrepair, with significant vegetative overgrowth within and outside of the building footprint.

Debris was noted to the west of the building, including several empty 55-gallon steel drums, metal racks, and wood pieces. A small shed was also present.

Further to the west, a temporary longhouse (i.e., carport) was in place. This structure appeared to have been used for the storage of various tools, ladders, and other maintenance related equipment. The floor of this area was gravel. Industrial quality shelving racks were present in the northern portion of this structure, and several shelves contained open and closed (some containing liquid and others empty) 5-gallon pails of "Super X VOC AIM." This material, made of a hydrocarbon oil blend, is typically used as a releasing agent on plywood forms for concrete structures. No material safety data sheet could be located to determine its potential status as a hazardous material, however the manufacturer suggests the use of gloves, goggles, and protective clothing while applying the product (Harris and Sons, Inc., 2004).

To the northwest of the longhouse, a pile of plywood was noted.

Building H - Concrete Block Building with Brick Chimney – Building H is located to the northwest of Building F, and is a two-story concrete block building with a metal roof. A large brick chimney is located at the northern end of the building. The building is in disrepair, with significant vegetative overgrowth within and outside of the building footprint. To the west of Building H, an area of burned wood and 55-gallon drums was noted. Several metal racks/frames were also located to the north of the building.

Building I – Railroad Building – Building I is located to the northwest of Building C, and is connected to Building C via an overhead concrete pipe rack. This two-story building is constructed of concrete block, and was largely empty (with the exception of some minor metal and wood debris). Large concrete ramps are present on the east side of the building. An abandoned railroad spur (from the main Metro-North line) enters the site and terminates to the southwest of this building.

Gas Holder – A large gas holder, reportedly used during the Property's operations as a magnesium refinery, is located near the center of the developed portion of the Project Development Area, towards the west. The gas holder is constructed of steel, and open portals were noted near the bottom of the holder.

West of the gas holder (near the edge of woods) is a large waste disposal area of concrete and brick remnants.

Steel Building and Large Storage Tank – To the northwest of the gas holder, a partially collapsed one-story steel building is present. Adjacent to this building is a large storage tank and a one-story concrete block building.

Adjacent to the small concrete block building, two approximately 500-gallon ASTs were observed. The ASTs appeared to be empty and no signs of staining on surrounding soils were evident.

Water Tower and Building – South of Building I, in the developed portion of the site, are the remains of a water tower and associated water treatment building. The water tower base is currently present, although the storage tank at the top of the tower no longer exists. The one-story concrete block building adjacent to the water tower appears to be the former water treatment building for the site. This building is in dilapidated condition.

The interior of the building contained various equipment associated with the water treatment and distribution. Some miscellaneous storage of materials was noted in this building. According to historical reports for the site, a groundwater supply well was also present within this building.

The railroad spur noted adjacent to Building I is located adjacent to these structures.

Pump House – A small pump house associated with former Property uses is located on the eastern bank of the Swamp River, to the west of the railroad track. An access road runs from the rail line to the pump house, although it is overgrown with vegetation. This one-story, dilapidated building is constructed of concrete block, and is surrounded by a chain-link fence.

2.2.1.2 Miscellaneous Solid Waste Disposal Areas

In addition to the general debris noted in the areas above, several areas of industrial and general waste are present as a result of historical industrial activities. To the north of the developed portion of the Project Development Area is a swale that runs from the northern end of Building C to a wetlands area (Wetland 2). Along this swale, and within the southern edge of the wetland, are deposits of tire chips, as well as a white, hard, chalky substance, likely associated with the previous magnesium extraction operations. This substance forms the banks of the swale, and enters the wetland. The bottom of the swale consists of a soft, mucky tan to yellow sawdust material which appears to be associated with the previous particle board operations. The material along the swale continues into the wetland.

Industrial and general debris is littered throughout the swale and continues into the wetland (see Section 3.2.2).

The wetland is bordered to the southwest by a berm consisting of a mixture of both general and industrial debris and the white chalky material (slag), overgrown with trees and shrubs. The berm continues to the southwest, forming a roughly circular elevated area approximately 450 feet in diameter, directly north of Building B. The western and northern edges of the wetlands are also bordered by berms consisting of the same general and industrial debris, mixed with the white chalky substance (slag) and overgrown with shrubs and trees.

2.2.1.3 Summary of Previous Site Investigations

Several reports regarding former site use and involvement by the New York State Department of Environmental Conservation (NYSDEC) in efforts to understand site conditions were also available. The following documents were reviewed:

- *Phase II Investigation, Mica Products Corporation* by Lawler, Matusky & Skelly Engineers (April 1991)
- *Waste Characterization Report* by Advanced Cleanup Technologies, Inc. (July 1994)
- *Mid-Hudson Recycling Park Subsurface Investigation* by Rust Environment and Infrastructure (November 1995)

2.2.1.3.1 Phase II Investigation, Mica Products Corporation

The Phase II Investigation (Lawler, Matusky, and Skelly Engineers, 1991) was conducted to evaluate potential environmental impacts resultant from the operation of the site by Mica Products Corporation. The investigation addressed possible soil, surface water, groundwater and other subsurface contamination from onsite activities, and to determine if there had been a release to the environment of hazardous waste.

The findings of the investigation were that dumped materials and industrial activities from the Mica Products Corporation operations were found to have had little impact on groundwater, surface water, sediment, and soils of the site. Several metals were detected in site groundwater, surface water, and soils, though not above hazardous waste thresholds, and were attributed to natural mineral levels in the local environment. Two areas, believed to be isolated and not indicative of widespread impacts, were found to also

have low-level volatile and semi-volatile contaminants in soil, probably due to a minor source of tar or residual petroleum product.

Based on the findings that no extensive contamination from the operations existed at the site, the report recommends that the site be delisted from the Inactive Hazardous Waste Sites list, and properly closed as a nonhazardous industrial landfill under the guidance of the NYSDEC Division of Solid Waste. Closure would then prevent the continued leaching of metals and other products to the groundwater and adjacent surface waters, and prevent future additions to the waste areas.

In a letter to Mr. Roland Greco (former property owner) from the NYSDEC dated November 7, 1991, the agency agrees that hazardous wastes had not been identified at the site, and that the site was being deleted from the Registry of Inactive Hazardous Waste Disposal Sites in New York.

2.2.1.3.2 Waste Characterization Report

The purpose of the Waste Characterization Report (Advanced Cleanup Technologies, 1994) was to characterize four specific waste disposal areas. Twenty-one soil samples in the four disposal areas were collected.

Four material types within the disposal areas were identified: grey, brown, white, and green/grey. Each type of material was separately analyzed and volumes of each were estimated. The conclusion of the report indicates that the various materials had been deposited and were not native to the site (with the exception of a well-graded sand and silty sand). The gravely sand and white materials noted in the disposal areas were remnants of former mining operations. A composite sample of the disposal areas did not indicate hazardous waste thresholds were exceeded.

The white material discussed within this report is presumed to be the similar white, chalky material related to the historical magnesium refining activities described in Section 2.2.1.2.

2.2.1.3.3 Mid-Hudson Recycling Park Subsurface Investigation

This subsurface investigation assessed a subset of the entire parcel, including areas east of the railroad track, but did not encompass the four waste disposal areas (Rust Environmental and Infrastructure, 1995). The report indicates that no action had commenced regarding closure of the waste piles previously studied.

The scope of work included the collection of hand auger type soil samples from six locations (26 borings in total). The soil descriptions indicated that there was a significant

presence of tire crumb material and a mass of fire bricks. Analytical results from a single soil sample indicated the presence of polychlorinated biphenyls (PCBs). The PCB detection was considered an isolated issue, since PCBs were not observed at other sampling locations in the area.

2.2.1.4 Phase I Environmental Site Assessment Summary

A Phase I Environmental Site Assessment (ESA) in accordance with specifications set forth by the American Society for Testing and Materials (ASTM) was conducted in June 2009. As a part of this ESA, files were reviewed, available reports examined and a site reconnaissance was conducted. The site and surrounding properties were not identified as having any active, current, or open cases regarding a release of hazardous materials in the federal, state, and local database review provided by Environmental Data Resources, Inc.

The 2009 Phase I Environmental Site Assessment identifies four on-site Recognized Environmental Conditions (RECs) (ARCADIS, 2009). Four off-site RECs and one Historic REC (HREC) are identified in connection with the site, as summarized below.

On-site RECs identified were as follows:

- Inactive aboveground storage tanks, located at various locations at the Property, are considered a REC, as the historical operations and use of the tanks may have resulted in the overfilling, spilling, or leakage of the products contained within the tanks.

- A former gas holder, identified in the central portion of the Project Development Area, is considered a REC, as the potential for historical impacts resulting from the operation of this feature may have impacted environmental media.

- The incomplete status of solid waste deposit removal is considered a REC since there has been no apparent activity at the site pertaining to closure of several waste piles as indicated appropriate by NYSDEC. The potential, therefore, continues for these waste piles to adversely affect the environment (i.e., surface water, sediment). Additionally, a historical detection of PCBs in the waste piles has not been fully delineated nor addressed by remedial action.

- The presence of a tan to yellow sawdust type material within Wetland 2 is considered a REC as the material had not been categorized to date, based on the review of historical documents for the site. The potential exists that this

material may be adversely affecting the environment given its location within the drainage swale and extending into the adjacent wetland (see Section 3.2.2).

The following off-site RECs were identified:

- The currently operational Metro-North railroad line (extending on separately owned property that transects the Property) has been in use since at least 1901 (as evidenced by its inclusion on the 1901 historical topographic map), and is visible on Figure 1-4. Historical operations of the railroad likely included the transport of petroleum and chemical compounds over many years of operation, including the likely loading and off-loading of the cargo along the rail line and/or spur to the site. However, no staining, free product, or distressed vegetation was observed during the site reconnaissance. Although minor areas of dumping were visually observed in the area of the railroad track, none of the materials were considered to be of environmental concern as they consisted of vegetation (brush, trees, etc.) or general debris and trash (such as concrete, brick, and household trash). However, the absence of additional information regarding the environmental history of the railroad line, as well as common railroad-related environmental issues, provides the potential for this off-site property to be of environmental concern to the subject site.

- RASCO Materials, LLC (formerly TT Materials Corporation), located on an adjacent parcel owned by Howlands Lake Partners south of the Project Development Area, is listed as an inactive solid waste facility which recycles contaminated soils. No additional investigation of the status of this operation was conducted as a part of the Phase I ESA. Although separate and distinct from the Property, it is considered a REC as potential impacts resultant from this adjacent operation or its predecessors have the potential to have extended within the Project Development Area boundaries.

- The environmental status of the South East Auto Recycling Inc., an inactive vehicle dismantling facility located less than ¼ mile east of the Project Development Area and immediately across New York State Route 22 is unknown, as is groundwater quality and flow direction from this property towards the Property. The potential exists that impacts to groundwater from this site may be adversely affecting groundwater at the Property.

- The environmental status of the Dover #3 Cricket Hill Solid Waste Landfill, an inactive mixed solid waste landfill, is unknown, as is groundwater quality and flow

direction from this property towards the Property. This landfill is located less than ½ mile to the east-northeast of the Property. The potential exists that impacts to groundwater from this site may be adversely affecting groundwater at the Property.

In addition to the RECs identified, former site uses were considered an HREC in the Phase I ESA. Although previous limited site investigations have been completed pertaining specifically to the former Mica Products operations and the several waste piles at the site, other operations at the site have occurred that may have adversely affected the environment (including a tire recycling facility).

As a result of the Phase I findings, it was determined that further testing of the sawdust type material was necessary. A sample was collected on June 2, 2009 and analyzed for volatile and semi-volatile organic compounds, metals, and PCBs. Laboratory analysis indicated that none of the above analytes exceeded the NYSDEC Part 375 Soil Cleanup Objectives, with the exception of acetone which exceeded the Unrestricted Use Soil Cleanup Objective. The concentration, however, is orders of magnitude below the more appropriate NYSDEC Part 375 Industrial Soil Cleanup Objective. Additionally, review of the analytical data indicates that this acetone detection may be a false positive. Acetone will be further investigated as a part of early construction activities when more detailed work is completed in support of the wetland restoration work currently planned in this area of the site.

Based upon its review of previous investigations and assessment of analytical data from recent pump testing, CVE has gained an appropriate understanding of existing conditions at the Property. Although additional areas remain where RECs have been identified, given the non-hazardous and/or isolated nature of the conditions, further characterization was not determined to be warranted at this time. As discussed in Section 2.3.1, further delineation of materials will be incorporated as the first phase of site preparation in order to confirm appropriate material handling and disposal as required. Potential existing conditions with regard to groundwater quality are addressed in Section 5.

2.2.2 Geology and Seismology

The project is located in the New England Physiographic Province, which largely consists of metamorphic rock (schist, phyllite and metagraywacke) in the mountainous regions. Layers of marble and sedimentary deposits of limestone and dolomite underlie the valleys (U.S. Department of Agriculture [USDA], 2008). As shown on Figure 2-2, the mapped bedrock formation underlying the majority of the Property is Stockbridge Marble (Ordovician Age), a calcitic and dolomitic marble. The bedrock on the western edge of the Property, along the

Swamp River, is Walloomsac Formation, consisting of phyllite, schist, and metagraywacke. The 1991 Phase II Investigation conducted by Lawler, Matusky, and Skelly Engineers confirms that five of the six wells installed for prior use encountered shallow bedrock described as "a limey dolostone that varied in degree of metamorphism," and that most of the recovered cores were extensively fractured. At 30 borings across the Project Development Area, bedrock was encountered at 0 to 10 feet below ground surface, although one boring, located in the northeastern corner of the Project Development Area, encountered bedrock at 36 feet below ground surface (Lawler, Matusky, and Skelly Engineers, 1991; Rust, 1995). At the bedrock water supply wells installed in the Project Development Area in 2009 and 2010 (see Section 5.4), bedrock was observed at approximately 7 to 13 feet below ground surface.

No unique or unusual geologic conditions exist on the site. Due to the previously observed highly fractured nature of the bedrock, some blasting may be required to reach competent bedrock suitable for the proposed building construction and to support standard heavy equipment necessary for construction excavation. The project's grading and blasting plans and anticipated impacts are discussed in Section 2.3.2.

New York State is divided into four seismic zones: A, B, C, and D, with seismic zone factors (Z) of 0.09, 0.12, 0.15 and 0.18, respectively (measuring effective peak acceleration in fractions of g, where g equals the earth's gravity acceleration). The Multidisciplinary Center for Earthquake Engineering Research (MCEER, 2010) has mapped the site area as falling within Seismic Zone C, reflecting an area of intermediate seismic hazard with an effective peak acceleration of 0.15g. This value will be used in accordance with the appropriate design code to determine the seismic forces that could be imposed on the project structures in the event of an earthquake.

According to the New York State Geological Survey, the likelihood of a damaging earthquake in New York is small overall but the possibility is higher in the northern part of the state and in the New York City region. The most damaging earthquake recorded in New York occurred on September 4, 1944 about midway between Massena, New York, and Cornwall, Ontario, Canada. It had a magnitude of 6.0 on the Richter scale. The most recent earthquake in New York occurred on May 18, 2010 about 20 miles east of Massena, registering 2.8 on the Richter scale (New York State Museum, 2010).

2.2.3 Topography and Soils

The Project Development Area is located on the western slope of a north-south trending ridge that separates the Swamp and Ten Mile rivers. New York State Route 22, which

forms the eastern Property boundary, sits approximately 40 feet higher than the rest of the site, and the entrance to the Project Development Area slopes down across this feature until it reaches the existing site buildings. The Project Development Area itself indicates relatively little topographic relief, although there is a gentle slope towards the west (and towards the Swamp River). Regionally, the site is located within a valley (the Swamp River Valley) with topography increasing significantly to the east of the site (in the area defined as East Mountain) and west of the site (West Mountain).

The northern portion of the Project Development Area is relatively flat at an elevation of approximately 430 feet above mean sea level (msl), though an increase in elevation to the northeast (to elevations of approximately 470 to 480 feet msl) is present. The topographic elevation in the southern portion of the Project Development Area remains fairly consistent at an elevation of approximately 415 feet msl.

The Dutchess County Soil Survey (USDA, 2008) indicates that the soils are a mix of gravelly or sandy silt loams. A summary of on-site soil units, range of slopes, hydrological group, and hydric classification is included below and in Table 2-1. The soil map units are shown in Figure 2-3. The primary soils to be encountered within the Project Development Area during site development are described in additional detail below.

Table 2-1: Soil Unit Characteristics – Project Property

Soil Map Unit	Slope	Drainage Class	Permeability	Available Water Capacity	Geomorphology
Carlisle Muck	0-2 %	Very poorly drained	Moderately slow to moderately rapid	High	Bogs on outwash plains, till plains, floodplains
Copake gravelly silt loam, nearly level	0-2%	Well drained	Moderate or moderately rapid surface layer and subsoil; very wet substratum	Moderate	Valley floors, outwash plains
Farmington-Galway complex, hilly, very rocky	15-30%	Well drained, moderately well drained, and somewhat excessively drained	Moderate	Very low to low	Hills and side slopes
Farmington-Galway complex, rolling, very rocky	5-16%	Well drained, moderately well drained, and somewhat excessively drained	Moderate	Very low to low	Hilltops, narrow ridges, side slopes
Farmington-Galway complex, undulating, very rocky	1-6%	Well drained, moderately well drained, and somewhat excessively drained	Moderate	Low to very low	Hilltops, narrow ridges, till plains
Galway-Farmington-Urban	1-6%	Well drained, moderately well	Moderate	Low to very low	Hilltops and till plains

Soil Map Unit	Slope	Drainage Class	Permeability	Available Water Capacity	Geomorphology
land complex, undulating, very rocky		drained, and somewhat excessively drained			
Stockbridge-Farmington complex, undulating, rocky	1-6%	Well drained to somewhat excessively drained	Moderate in the surface layer and subsoil; slow to moderate in the substratum	High to very low	Hilltops and till plains
Sun silt loam	0-3%	Poorly drained and very poorly drained	Moderate in the surface layer; slow or very slow in the subsoil and substratum	High	Depressions and along drainageways between hills
Udorthents, smoothed	not recorded	Somewhat excessively drained to moderately well drained	Not recorded	Not recorded	In and adjacent to urban areas, schoolyards and borrow areas
Wayland silt loam	0-3%	Poorly drained and very poorly drained	Moderately slow or moderate in the surface layer; slow in the subsoil and substratum	High	Floodplains

- Galway-Farmington-Urban land complex is found in the approximate center of the Project Development Area. This unit consists of moderately deep, well drained and moderately well drained Galway soils, and shallow, well drained and somewhat excessively drained Farmington soils, as well as urban land. This soil type is typically found on hilltops and till plains that are underlain by folded limestone bedrock.

- Farmington-Galway complex is present along the northeast and eastern borders of the Project Development Area, as well as a swath along the railway to the west of the site buildings. These units consist of shallow, well drained and somewhat excessively drained Farmington soils and moderately deep, well drained and moderately well drained Galway soils that formed in glacial till deposits, composed primarily of brown gravelly or sandy loam. This soil type is typically found on hilltops, narrow ridges, and till plans that are underlain by folded limestone bedrock.

- Udorthents, smoothed, are present in two places within the Project Development Area, and closely associated with the slag areas in the northeastern portion of the Development Area. This unit consists of very deep, somewhat excessively

drained to moderately well drained soils that have been altered by cutting or filling. This soil type is typically found in and adjacent to urban areas, industrial areas, schoolyards, and fill borrow areas.

- Sun silt loam is found in the northwestern section of the Project Development Area, and is roughly associated with the boundaries of Wetlands 1 and 2. This unit consists of very deep, nearly level, and poorly drained and very poorly drained Sun soils. This soil type is typically found in depressions and along drainage ways between hills and on till plains.

- Wayland silt loam is mostly mapped on the western side of the Metro-North rail line; however, a small finger juts into the southern portion of the Project Development Area. This unit consists of very deep, nearly level and poorly drained and very poorly drained Wayland soils that formed in alluvium deposits. It is typically found on floodplains.

2.2.4 Construction Work Parking/Laydown Site

2.2.4.1 Existing Development and Recognized Environmental Conditions

As described in Section 1.5.3, an offsite location approximately 2.5 miles north of the project site will be used for construction worker parking and equipment laydown (Laydown Site). The Laydown Site, a 30-acre portion of a larger property, is located between New York State Route 22 and Old State Route 22. Currently, the Laydown Site is in use as an active agricultural field, bordered by a strip of undeveloped woodlands on its western boundary (adjacent to New York State Route 22); wetlands and undeveloped land to the south; wetlands and currently vacant farm buildings to the east; and a continuation of the field to the north. The Laydown Site was historically associated with the vacant farm buildings, although this portion of the property is not included in the 35-acre laydown parcel.

A Phase I ESA was conducted in May 2010 in accordance with ASTM specifications. One potential on-site REC was identified associated with potential use of chemical fertilizers, pesticides, or herbicides. The owner's representative had limited information regarding the use of pesticides, herbicides, or fertilizers related to the current or historical on-site farming operations. There is potential for impacts to the soil and groundwater as a result of the use of these chemicals.

Two off-site RECs were also identified on the larger property, but not associated with the Laydown Site, as follows:

- Storage and handling of chemical fertilizers, pesticides, or herbicides: Only limited information was available regarding the storage or handling of chemical fertilizers, pesticides, or herbicides. It is assumed that any agricultural chemicals used during cultivation would be stored in the adjacent associated farm buildings, and the presence of a metal shed and several concrete pads and foundations suggest additional potential storage buildings. Although no staining or other visual impacts were noted at the site visit, there is potential for historical impacts as a result of spilling or leaking of the products during storage, stockpiling, or handling, especially in the area of current and former buildings.

- Possible PCB-containing pole-mounted transformer: The presence of a pole-mounted transformer located proximate to the driveway of the adjacent farmhouse is considered a potential REC due to its unknown age, condition, and the possible presence of PCB-containing dielectric fluid.

2.2.4.2 Geology and Seismology

As shown on Figure 2-4, the majority of the Laydown Site is underlain by Stockbridge Marble, with Everett Schist underlying a small portion of the southwest corner. According to the Dutchess County Soil Survey (USDA, 2008), bedrock is expected to be shallow, located at 0 to 7 feet below grade. No unique or unusual geologic conditions exist on the Laydown Site that would preclude its use for construction worker parking or for equipment laydown.

2.2.4.3 Topography and Soils

The Laydown Site is located within an actively farmed agricultural field, with relatively little natural topographic relief within the Laydown Site's boundaries, at an elevation of approximately 380 feet msl. Within the field, there is a gentle slope towards the south, while the western border slopes up towards New York State Route 22, and the eastern and southeastern borders slope down toward their respective bordering wetland areas. Regionally, the Laydown Site is located within a valley (the Swamp River Valley) with topography increasing significantly to the east (in the area defined as East Mountain) and west of the Laydown Site (West Mountain).

The Dutchess County Soil Survey (USDA, 2008) indicates that the soils at the Laydown Site consist mostly of a mix of gravelly silt loam. A summary of on-site soil units, range of slopes, hydrological group, and hydric classification is included in Table 2-2. The soil map units are shown on Figure 2-5. The soils anticipated to be encountered within the Laydown Site are described in additional detail below.

- Copake gravelly silt loam is mapped throughout most of the Laydown Site, as well as the adjacent agricultural fields to the north. This unit consists of very deep and well drained soils, and is found on valley floors and outwash plains. This unit is characterized by the USDA as prime farmland, and as such, it will be stockpiled at the Laydown Site for restoration by CVE upon completion of the project.

- Wayland silt loam is mapped on the southern border of the Laydown Site, associated with the wetlands which border the site to the south. This unit consists of very deep, nearly level and poorly drained and very poorly drained Wayland soils that formed in alluvium deposits. This soil type is found on floodplains.

- Pawling silt loam is mapped, like Wayland silt loam, on the southern border of the Laydown Site, and appears to be associated with the wetlands bordering the site to the south. This unit consists of very deep, nearly level, and moderately well drained Pawling soils that formed in alluvial deposits. This soil type is found on floodplains.

Table 2-2: Soil Unit Characteristics – Laydown Site

Soil Map Unit	Slope	Drainage Class	Permeability	Available Water Capacity	Geomorphology
Copake gravelly silt loam, nearly level	0-2%	Well drained	Moderate or moderately rapid surface layer and subsoil; very wet substratum	Moderate	Valley floors, outwash plains
Copake gravelly silt loam, rolling	5-16%	Well drained	Moderate or moderately rapid surface layer and subsoil; very wet substratum	Moderate	Valley sides, small hills
Pawling silt loam	0-3%	Moderately well drained	Moderate in the surface layer and subsoil; moderately rapid to rapid in the substratum	High	Floodplains
Wayland silt loam	0-3%	Poorly drained and very poorly drained	Moderately slow or moderate in the surface layer; slow in the subsoil and substratum	High	Floodplains

According to the soil survey (USDA, 2008), bedrock is expected to be at least 5 feet below ground surface, and the seasonal high water table is reported to be at least 6 feet below ground surface.

2.3 Project Related Impacts and Mitigation Measures

This section discusses impacts from the construction and operation of the project, and the measures which CVE proposes in order to minimize or mitigate adverse impacts with the following goals:

- Minimize wetland impact;
- Minimize NYSDEC jurisdictional wetland Adjacent Area impact ;
- Maximize the use of the existing developed footprint and other previously disturbed areas;
- Minimize clearing of forested areas;
- Avoid substantial earth movement; and
- Maintain practical technical equipment orientation to facilitate construction and operations in an efficient, safe and least-impact manner.

As such, the project has been designed to be compatible with the Property's environmental resources and surrounding land uses, and the Project Development Area has been primarily limited to land altered by past industrial uses. As discussed in Section 2.2.1, the Project Development Area has a long history of industrial use and numerous dilapidated, vacant industrial structures and associated debris are located in that area.

Construction activities will be largely located within the footprint of the existing industrial buildings in the Project Development Area, and can take advantage of that previously disturbed area. Site preparation activities are expected to commence in early 2012, and will include a pre-demolition survey and building material characterization, demolition of the existing buildings, removal of existing waste piles and debris, vegetation clearing, grading, and blasting, as necessary; these activities are discussed in further detail below. As discussed in Section 2.2.1, several RECs have been noted pertaining to existing conditions at the Property. Further investigation of these RECs will be performed prior to development activities, if necessary.

2.3.1 Planned Demolition and Clean-up

Demolition and/or clean-up activities will occur on approximately 30 acres within the 57-acre Project Development Area. Site preparation activities are anticipated to take 6 months, with a proposed mobilization date of April 2012. Prior to mobilization, a Pre-Demolition Characterization Survey will be conducted in order to evaluate potential environmental concerns. The results from the survey will be used for the preparation of demolition specifications for the removal of these materials as part of a site-wide demolition plan. All existing buildings, stacks, and tanks will be surveyed as part of this effort. This survey will provide the locations and estimated quantities of any of the following materials: asbestos containing materials; lead-based paint; chlorofluorocarbons; metallic dusts; mercury; PCBs; fluorescent tubes for lighting; and solvent materials.

All of the materials identified in the survey will be evaluated for removal from the buildings and property prior to demolition. Some lead-based paint and asbestos containing material areas (such as window glazing or roofing) will be difficult to remove. Removal and disposal methods will strictly adhere to all applicable federal, state, and local guidelines for such activity, including the disposal of removed demolition wastes. Environmental characteristics of excavated soils, fill, and other materials will be assessed upon removal to ensure proper onsite handling and offsite transportation and disposal, as may be required by applicable regulations, including 6 NYCRR Parts 360, 364, 370, 371, 372, and 376.

The abatement of hazardous materials will be performed by licensed contractors according to applicable federal, state, and local regulations governing each material and as outlined by the project's demolition procedures and specifications. Each phase of the work will be overseen by a third party environmental monitor and, where required, environmental sampling will be conducted on a continuous or periodic basis.

Surveying, identification, removal, and abatement of asbestos-containing materials will be performed in accordance with all applicable requirements, including 12 NYCRR Part 56. Asbestos containing materials will be removed from the site according to the New York State Industrial Code, the U.S. Environmental Protection Agency's (USEPA's) National Environmental Standard for Hazardous Air Pollutants and site specific project specification. Asbestos project monitoring and air sampling will be conducted at the site by licensed personnel representing a third party consultant. The removal of hazardous materials from the site, including PCBs, mercury, fluorescent lights, and solvent materials, if present, will be performed by experienced contractors. All waste containers will be properly labeled prior to removal from the site. Disposal sites and landfills will be pre-approved for each type of waste that is to be disposed.

Contractors performing this type of work at the site will be required to conduct employee monitoring according to the applicable Occupational Safety and Health Administration (OSHA) regulations for each of the materials encountered. Strict adherence to personal protection requirements will be maintained by a third party safety consultant. Prior to selecting a demolition contractor and commencing work, safety policies and project specific plans will be thoroughly reviewed. Contractors will be notified that failure to comply with safety standards will result in termination.

Building demolition and clean-up of the Project Development Area will be a component of early-stage project construction. Buildings will be demolished using conventional demolition methodology, such as a crane with drop ball working in conjunction with grapple/shear equipped excavators and track loaders. The final building demolition methods will be chosen based on actual demolition work scope specification and other approved methods to safely collapse or dismantle structures. Demolition debris will be prepared for disposal by segregating metals from brick and concrete. If possible, clean concrete and brick will be crushed and recycled as fill on site, as local zoning or variances permit. Demolition debris, for disposal or reuse, will be tested utilizing the Toxicity Characteristics Leaching Procedure for lead and other metals that might be suspected. The debris will be classified according to test results and properly disposed of, or recycled as fill, in accordance with applicable disposal regulations. Steel will be transported to an approved recycler. Combustible building debris will be transported offsite for proper disposal.

In addition to removing the existing abandoned and collapsed industrial buildings from the Property, CVE will also remove solid waste, dumped slag and refuse which currently exist on the Property. As previously stated in Section 2.2.1, the NYSDEC Division of Solid Waste recommends clean-up and closure of three on-site waste piles, which CVE will mitigate and close per solid waste regulations. In a Waste Characterization Report (Advanced Cleanup Technologies, Inc, 1994), these three piles of white, chalky slag material were estimated to be a combined 76,900 cubic yards. A pile of tire crumbs located within the Project Development Area, likely resulting from the operation of the Poly Tech tire recycling facility, will also be removed as part of site preparation activities. The Mid-Hudson Recycling Park Subsurface Investigation (Rust Environment and Infrastructure, 1995) estimated this pile to be approximately 4,500 square feet.

Also identified in previous reports is a tan to yellow mucky material, thought to be waste sawdust from the former laminating/particle board production facility. This material is located in a swale on the northern portion of the Project Development Area, within a wetland area identified as Wetland 2. Preliminary laboratory testing shows that the material is not toxic, however further testing will be conducted prior to excavation of the material.

Following the excavation, CVE will restore that wetland and create some additional wetland area (see Section 3.3.1.2 for further detail).

Standard excavation techniques and equipment, consistent with that used for project construction, will be employed by the project to remove the existing waste piles and wetland deposits. This disturbance will be temporary in nature, and will contribute to enhanced biological functioning upon restoration or revegetation of the affected areas (see Section 3.3.1 for discussion of impacts to wetlands and adjacent areas). CVE's removal of existing waste piles and disposal methods shall strictly adhere to all applicable federal, state, and local guidelines. If any hazardous materials are present, the abatement of such materials will be performed by licensed contractors according to applicable federal, state, and local regulations governing each material and as outlined by the project's demolition procedures and specifications.

As previously discussed in Section 2.2.1, above, the Property is littered with general debris and industrial waste, both inside the buildings and in piles throughout the property. During the demolition process, debris within the Project Development Area will be collected and sorted with the debris from the demolition of the buildings. Any debris or waste suspected to contain lead-based paint, asbestos containing materials, or other toxic materials (such as the approximately 38,500 square foot fire brick pile) will be tested with approved methods prior to mobilization, classified according to test results, and properly disposed of or recycled as fill, in accordance with applicable disposal regulations.

2.3.2 Grading and Blasting

This section discusses the activities required to re-grade and excavate the Project Development Area following demolition, and reviews techniques that may be used, including clearing, grubbing, material removal, and blasting. Although blasting will be used only as needed, a full discussion of techniques, safety measures and outreach is included in this section.

As the demolition phase is completed, the Project Development Area will be cleared and grubbed as needed. Clearing and grubbing will consist of the removal and disposal of trees, snags, logs, brush, stumps, shrubs, and rubbish from the designated areas. Materials removed during the clearing and grubbing operations will be disposed of at an approved landfill and contractors will comply with all applicable local, state, or federal regulations.

Natural vegetation will be preserved wherever possible in accordance with the site plan and the final clearing and grubbing plan. Preserving natural and mature vegetation will provide a

visual buffer, preserve habitat, and reduce soil erosion. When preserving vegetation, temporary construction fences will be installed to prevent equipment from damaging areas designated for preservation, including the established wetlands. The operations will be conducted in a manner to prevent limb, bark, or root injuries to trees, shrubs, or other types of vegetation that are to remain growing and to prevent damage to adjacent property. If any unavoidable damage occurs, all rough edges of scarred areas shall be made reasonably smooth and treated in accordance with generally accepted horticultural practice.

Before the below grade preparation commences, all surface cover materials will be removed, including topsoil, as well as any other underlying soft or unsuitable material within the designated construction areas. The topsoil and subsurface material will be sorted and stockpiled on the site within designated erosion control areas.

Any additional excavated materials will be temporarily stockpiled prior to disposal or use as fill. Stockpiles will be maintained in accordance with a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will be developed in accordance with the "NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity," as well as the final bid specifications for site preparation.

Standard heavy equipment, such as excavators, bulldozers, graders, front-end loaders, concrete trucks, and dump trucks, will be used to cut, fill, and re-grade the site. Excavation and grading will be performed in a way that optimizes good site drainage and runoff control. During this process, any excavated material will be reused whenever possible, and soils or material unsuitable for on-site use will be recycled off-site for landscaping or non-engineering grade fill. Specific areas may require the removal of subsurface rock, and rough grading for below grade preparation. A summary of the approximate cut volumes are identified in Table 2-3.

Table 2-3: Cut and Fill Volume Estimates – Project Development Area

Material	Excavation of Existing Material (cubic yards)	Project Material Requirements (cubic yards)	Import or Export of Material (cubic yards)	Reuse of Suitable Existing Material (cubic yards)
Top Soil	1,269	2,418	1,149	1,269
Subsoil/Backfill	151,786	177,052	24,317[a]	152,735[a]
Bedrock/Aggregate	36,822	35,873	--[a]	35,873

[a] Remaining 949 cubic yards of excavated bedrock will for reused for final site backfill.

Due to anticipated shallow bedrock within the construction area as estimated in Figure 2-6, blasting may be necessary to excavate foundations and support structures, and will be used only if necessary. Preliminary assessment of the site's geological conditions and construction specifications indicates that a portion of on-site rock will require removal during construction. Based on the worst case scenario, there are four potential areas that may require rock removal: 1) the stormwater basin; 2) limited power block areas associated with the gas and steam turbine foundations; 3) areas north and south of the main entrance road; and 4) the fuel gas metering and conditioning stations.

There are numerous areas of surface and subsurface rock where mechanical equipment may be unable to rip or excavate rock to allow construction of the underground utilities or foundations. In these areas, blasting will be used to shatter the rock to allow grading or excavation. Prior to construction, a detailed geotechnical survey will be conducted on the site to determine if or how often blasting will need to occur. Blasting will be used as a last resort measure when mechanical equipment is unable to excavate as needed for construction.

If blasting is deemed necessary, all blasting operations will adhere to applicable New York State statutes and regulations governing the use of explosives. These state regulations are contained in 12 New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York Part 39 and in Industrial Code Rule 53, and include such requirements as licensing of operators; magazine (explosive storage) certification; and procedures for conducting operations in a safe manner. All pertinent safety regulations and standards will be applied as required for safety and security for any blasting deemed necessary. Additional applicable safety regulations include:

- Code of Federal Regulations (CFR), Bureau of Alcohol, Tobacco, Firearms, and Explosives Title 27 and 49
- Article 16 of the Labor Law of the New York State
- Town of Dover Code, Chapter 69
- Directive 495 Standards of the National Fire Protection Association
- OSHA standards, 29 CFR 1926.900-1926.914 and 1910.109

The blasting contractor will be permitted, qualified, and experienced in handling, hauling supervision, and detonation of explosives. The blasting contractor will provide certificates and licenses for all applicable jurisdictions (federal, state and local laws, ordinances and regulations) and for every person directing or conducting blasting operations. The blasting contractor will carry sufficient liability insurance, per federal, state and local laws,

ordinances and regulations, to cover unintended property damage or bodily injury to any person.

Should blasting be required, a detailed safety plan will be developed and a comprehensive public outreach plan will be implemented well in advance of the blasting activities. The safety plan will be developed to describe safety standards and practices that will be implemented during construction to minimize health, safety, and environmental impacts related to blasting on the project. The public outreach plan will detail the approach to communicating blasting plans to the surrounding community and emergency officials. The NYSDEC and Town of Dover will be consulted during the formulation of the communication plan, which will include direct notification of abutters and nearby residents and businesses, as well as appropriate signage along Route 22. As required by the Dover Town Code Chapter 69-13 (c), written notice will also be given to the Town Clerk, New York State Police, Dutchess County Sheriff's Office, and Building Department no less than 24 hours prior to blasting.

Charge sizes, limits, and quantities of discrete blasts will be determined by the blasting contractor based upon the specific site and field conditions. The sizes and limits will be based on controlling over-blasting, characterized by excessive displacement of rock, breakage patterns, rock size, excessive throw of rock (flyrock), ground vibrations, and noise.

Blasting will occur only during daylight hours and within the permitted hours and days set forth by the Town of Dover's laws, ordinances and regulations. In addition, the time and durations will be closely coordinated with the Metro-North Railroad commuter train and public transportation schedules, including school buses.

Warning measures, including visual and audible signaling, will be implemented when blasting operations are underway. Warning signs, flaggers and/or guards will be posted at all points of public access to the areas, including the Metro-North Railroad line and New York State Route 22 (if required), at a determined distance for public protection and safety. Signs will display information regarding warning signals, access, and two-way radio restrictions. Audible blast signals will consist of a suitable air horn or siren to produce a sound that is distinct from any other audible construction signal. The following audible blast signal will be suggested:

- Blast Warning – Three shorts blasts of the air horn or siren will be used to signal three minutes before detonation of explosives.

- Blast Imminent – One long blast of the air horn or siren will be given to signal one minute before detonation of explosives.

- All Clear Signal – After the blast area is checked by the blasting contractor and all charges have been detonated, two short blasts for the air horn or siren will be given.

The transportation, storage, possession, handling and use of explosives are subject to all relevant federal, state, and local requirements, ordinances, and guidelines. This is carefully regulated under the New York State Industrial Code Rule 39 and by the federal government under 49 CFR 177 (U.S. Department of Transportation) and 29 CFR 1926 subpart U (OSHA). The Bureau of Alcohol, Tobacco, Firearms and Explosives is the federal agency responsible for regulating the possession, storage, and transportation of explosives.

A pre- and post-construction structural survey will be conducted on all existing structures within the blast areas' seismic influence zones. The seismic influence zone will be determined based on the final blasting plans. These surveys will be performed by a qualified industry specialist in blasting and ground vibrations. With permission from the property owner(s), a detailed pre- and post-blasting survey will be performed on the structures with video, photographic, and audio recording equipment to document cracks and defects. The survey will consist of exterior and interior inspections, including piping, cabling, foundations, walls, chimneys, and other structural components as deemed necessary.

Blasting operations will be carefully planned with full consideration for all forces and conditions involved. The minimum amount of blasting material and controlled blasting procedures will be used to effectively fracture the rock to the excavation depth. A discussion of applicable blasting regulations for safety and vibration will be conducted with town safety officials. The discussion will include any limits regarding vibrations during blasting and the measures to be employed to meet the limits, as well as vibration monitoring during blasting. Each blast will be monitored by a licensed blaster or other person experienced in monitoring blasts using a seismograph machine. The seismograph will be placed at the "point of interest." In most cases, the "point of interest" will be next to the foundation of the closest building or structure, power line foundation, gas pipeline or well. In all cases, both the seismograph sensor and seismograph will be protected from flyrock.

The local fire department and other permitting authorities will be notified at least 10 business days prior to the commencement of initial blasting. It is the blasting contractor's responsibility to obtain all necessary blasting permits and approvals from the local fire departments and regulating authorities, as well as to follow all federal and state laws and regulations applicable to obtaining, owning, transporting, storing, handling, and using explosive materials.

The blasting contractor will provide written notification via certified mail, return receipt requested at least ten business days prior to the commencement of the initial blast to all the owners/residents of properties containing structures within a 1,000-foot radius of the blasting operation. This radius may be adjusted based on the final blasting plans and conditions. The written notification must describe: 1) the blasting that will take place, including dates and times, or a range of dates and times; 2) when blasting may occur; 3) the possible effects of blasting on the owners or residents; 4) the availability of obtaining a pre-blast and post-blast inspection of structures and wells; and 5) instructions on how and where to contact the contractor or his/her representative concerning blast-related complaints or claims. The written notification will include a mailing address and telephone number that property owners can use to obtain information or to request, at no cost, pre-blast/post-blast inspections. Property owners will be given a period of five business days to request pre-blast/post-blast inspection. Property owners are not obligated to accept a pre-blast/post-blast inspection offer.

The contractor will coordinate all necessary blasting programs with Iroquois Natural Gas Transmission System LP, Consolidated Edison Company of New York, and other utility companies as appropriate to ensure that the pipeline and utility infrastructure is adequately protected and all applicable parties are aware of the blasting program and schedule.

Mitigation for any potential adverse impacts to wildlife from project blasting activities will be coordinated with the NYSDEC. Typical mitigation measure may include scheduling of blasting activities, use of mats to control blast debris, adjusting charge sizes, controlling detonation velocities, types of explosives and modifying the blast initiation system. All blasting will be carried out in accordance with the approved blasting plan, which will consider potential negative effects on local water wells and aquifers, as well as environmental impacts, noise, and abnormal disruptions to the community. All blasting will be carefully designed by the licensed blaster to control flyrock. All hole-loading activity will be supervised by the licensed blaster. The licensed blaster will communicate with the drillers to obtain geological information for each blast. Blast matting and/or padding will be utilized at the discretion of the licensed blaster to minimize scattering of blast debris around the area.

Following demolition and construction of the proposed structures and buildings associated with the project, a final grading plan will be implemented. Under this plan, activities will include completion of all storm water management systems, placing of fill to achieve final grade elevations, installation of landscaping, and wetlands restoration and creation (Section 3.3.1.2 provides details regarding wetlands restoration and creation within the Project Development Area).

Much of the proposed 30-acre construction site is already significantly impacted by the previously developed industrial facility and its associated waste areas. The impacts of grading and blasting activities on the area's existing natural formations are anticipated to be minimal, and confined to the 30-acre construction site. No unique or protected geologic or topographic resources have been identified within the Project Development Area. The proposed alterations to the area's geologic and topographic properties are not anticipated to cause any change to the surrounding areas, or contribute to changes within the Great Swamp CEA.

2.3.3 Seismic Impacts

According to the Northern and Eastern Dutchess County Communities Regional Natural Hazard Mitigation Plan (URS, 2010):

- Earthquakes are discussed in the plan since earthquakes have occurred in and around the State of New York in the past. The state ranks Dutchess County 15th out of 62 counties for potential annualized earthquake losses and 23rd out of 62 for potential annualized earthquake loss per capita.

- According to USGS seismic hazard maps, the peak ground acceleration with a 10 percent probability of exceedance in 50 years for the participating communities in Dutchess County is 3 percent of gravity. The Federal Emergency Management Agency requires that earthquakes be further evaluated for mitigation purposes in areas with a peak ground acceleration of 3 percent of gravity or more.

- USGS records show two significant earthquakes affecting Dutchess County, where "significant" is defined as those that caused deaths and/or property damage, or were experienced by populations in the epicentral area. One event occurred on June 7, 1974 and a second event on February 26, 1983 (both with Modified Mercalli Intensities of VI).

As noted in the New York State Mitigation Plan (New York State Office of Emergency Management, 2010), although the probability of damaging earthquakes in New York State is low, earthquakes do occur on a regular basis in New York. Although the New York State Mitigation Plan identifies at least one insignificant (<magnitude 5.0) earthquake epicenter in the southern Dutchess County area (in the Town of Pawling area), detailed information regarding any events in the area is not available.

Eastern New York State regularly experiences low levels of earthquake activity. Project structures will be designed and constructed in accordance with the most recent seismic design provisions applicable to the area in order to minimize structural impacts in the event of a seismic event at magnitudes predicted for the area.

2.3.4 Laydown Site

To accommodate daily parking of construction workers' personal vehicles and the possible storage of heavy equipment and building materials, the Laydown Site will require temporary removal of agricultural plantings and topsoil. As discussed in Section 2.2.4, the soils at the Laydown Site have been classified by the USDA as prime farmland. To preserve this important agricultural resource, all soils will be removed, temporarily stockpiled, and ultimately restored according to guidelines established for such activities by the New York State Department of Agriculture and Markets and the NYSDEC, and detailed in the SWPPP. The topsoil will be stockpiled separately from subsoil, in an area away from storm drainage and water bodies, which will be clearly designated at the site and on the construction drawings. All stockpiles will be protected from erosion by erosion control blankets (jute mesh), temporary seeding, and surrounding silt fencing as needed and/or specified in the SWPPP. A Conceptual Stormwater Report for the Laydown Site has been developed, as discussed further in Section 5.6.

As the demolition phase completes, the Laydown Site will be cleared and grubbed of designated vegetation as needed. In order to prepare the Laydown Site, a driveway will be cleared through the narrow strip of forested land on the western edge of the agricultural field to provide direct access to New York State Route 22, and the existing topsoil will be removed. Excavation will be necessary to establish this access way, as well as to strip and stockpile the topsoil. Standard excavation equipment and techniques similar to those used at the Project Development Area will be employed for these activities. It is unclear at this time whether additional fill is necessary for preparation of this area, as further investigation is needed to determine subsurface soil conditions. All activities will be conducted using Best Management Practices (BMPs) and measures outlined in the SWPPP, as well as the final bid specifications for the Laydown Site modifications.

While in use, the Laydown Site will continue to operate under the SWPPP, incorporating construction BMPs similar to those used at the Project Development Area. Silt fences, geotextiles, crushed rock, hay bales, and settling tanks or ponds will be utilized to minimize surface erosion and to prevent ingress of sediment into any temporary and permanent drainage systems. Stabilized construction entrances will be utilized to prevent the tracking of soil or sediment onto public roadways. During its use, it is anticipated that the surface of the parking area will consist of a coarse material, such as gravel, both to help prevent channels and ruts from forming, and to minimize the potential for tracking soils onto public roadways. While the use of the Laydown Site will be temporary by design, attempts will be made to minimize the impacts associated with its intended use.

Immediately following its use, all imported fill, installed lighting and fencing, and any pieces of wire, bolts, construction debris, and other uncharacteristic items will be removed from the former field area. In all areas where topsoil was stripped, soil decompaction will be conducted prior to topsoil replacement. Efforts will be made to ensure that restoration activities do not occur after October 1, due to concerns that vegetation might not obtain sufficient growth to prevent erosion during the winter and spring season. The topsoil will be replaced to its original depth and contours, where possible. All rocks 4 inches and larger will be removed from the surface. The soil will be seeded with a mix agreed upon by the landowner, in order to maintain consistency with the northerly adjacent agricultural field.

CVE will assist the landowner in monitoring the Laydown Site for no less than two years, in order to identify any agricultural impacts associated with its use which may not be apparent immediately following the restoration activities. The monitoring program will track the general conditions of the field, including topsoil thickness and possible erosion, relative rock and large stone content, and drainage, as well as crop production. The conditions within the agricultural field adjacent to the north, which will remain an agricultural field throughout the project construction effort, will be used as a “steady state” comparison.

2.3.5 Construction Best Management Practices

CVE and its contractors will develop a Construction BMP Plan to identify the methods and controls which will be used to minimize or prevent potential impacts to the surrounding environment and the natural resources on and adjacent to the project’s construction as well as the Laydown Site. This set of guidelines will parallel requirements and commitments set forth in the SWPPP, and will be detailed in the bid specifications to be implemented by the general contractor hired to complete the activities.

All construction phases and activities related to the project will be controlled by the Construction BMP Plan. These items will be demolition, stockpile of debris, top-soil and fill materials, erection/construction and testing of the facility, delivery and staging of equipment and materials, labor parking, and final cleanup.

The Construction BMP Plan will include the methods and controls for the following:

- Erosion and sediment controls
  - Minimize disturbed area and protect natural features and soil
  - Phase construction activity to limit disturbed areas
  - Control stormwater flowing onto and through the project area
  - Stabilize soils and slopes
  - Protect storm drain inlets
  - Establish perimeter controls and sediment barriers
  - Retain sediment on-site
  - Establish stabilized construction exits
- Good housekeeping
  - Material handling and waste management
  - Establish proper building material staging areas
  - Designate washout areas
  - Establish proper equipment/vehicle fueling and maintenance practices
  - Allowable non-stormwater discharges and control equipment/vehicle washing
  - Spill prevention, control and management
- Natural resources
  - Species restrictions and concerns
  - Wetland restrictions and concerns
- Health and safety
  - Worker safety
  - Noise restrictions and limits
  - Air quality for fugitive dust and construction equipment emissions
- Training, inspections, and record keeping

The Construction BMP Plan will also address the organizational structures to identify the acting construction authority and responsibility for the BMP methods and controls during the different construction phases and activities, including emergency 24-hour contacts.

It is anticipated that the project will operate under a SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity. To obtain this permit, CVE must

develop and implement a SWPPP. A Preliminary SWPPP has been prepared and is further discussed in Section 5.6. As stated in the SWPPP, the document is developed with the following goals:

- Maintain existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;
- Control increases in the rate of the stormwater runoff resulting from the proposed development so as not to adversely alter downstream conditions;
- Implement volume reduction techniques to manage, reduce, and treat storm water and maintain and restore natural hydrology by infiltration, evapo-transpiration, and the capture and reuse of stormwater; and
- Mitigate potential stormwater quality impacts and preventing soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

The final document will be developed in accordance with the final design specifications and all applicable NYSDEC regulations, and will detail both temporary and permanent erosion and sediment control measures designed to attain the above goals during construction and operation of the project, according to the following principles:

- Minimization of soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction-site discharges.
- Following the completion of construction activities in any portion of the site, permanent vegetation shall be established on all exposed soils.
- Site preparation activities shall be planned to minimize the area and duration of soil disruption.
- Permanent traffic corridors shall be established and “routes of convenience” shall be avoided.

In order to minimize the temporary construction-related impacts, project activities will operate under the Construction BMP Plan.

Prior to demolition and construction activities, erosion controls such as silt fences, geotextiles, crushed rock, hay bales, and settling tanks or ponds will be installed; these structures will be utilized to minimize surface erosion and to prevent ingress of sediment into the temporary and permanent drainage systems. Stabilized construction entrances will be utilized to minimize the tracking of sediments onto public roadways, and trucks and vehicles transporting demolition debris offsite will be covered and cleaned prior to leaving the site. In areas to be left undeveloped, either permanently or for an extended period of time, surface areas will be finished with topsoil (if required) and vegetation to protect against surface erosion. Stockpiles and temporary excavation cut slopes will be covered with erosion control blankets (jute mesh) to minimize erosion, in accordance with applicable regulations.

Stockpiles will also be located in an area away from stormwater drainage and/or water bodies, and will be protected from erosion by a silt fence barrier. Temporary sediment traps, stone check dams, and/or diversion swales will be installed and maintained to direct, filter, and reduce the velocity of stormwater runoff during construction. Construction stormwater control measures will remain in place until all surfaces at the Project Development Area and Laydown Site are fully stabilized, and permanent erosion and sediment control measures are in place.

Once construction in an area has been completed, and final grade has been achieved, any disturbed soil must be seeded and mulched within 14 days. Final site stabilization is achieved when all soil-disturbing activities have been completed, and a uniform perennial vegetative cover with a density of 80 percent has been established, or equivalent stabilization measures have been employed on all unpaved and undeveloped areas.

Permanent sediment and stormwater control measures include rock outlet protection, which will reduce the depth, velocity, and energy of water to prevent erosion of the receiving water body, and permanent turf reinforcement mats, which will be installed on all slopes exceeding 30 percent and will assist in the establishment of vegetation.

During both construction and operation of the site, no solid or liquid waste materials will be discharged with stormwater. All waste materials must be collected and placed in containers, and if a spill should occur, it must be contained and disposed of so that it will not flow from the Property or enter the groundwater. Prior to operation, a Spill Prevention Control and Countermeasure (SPCC) Plan will be drafted and approved by the applicable agencies. The SPCC Plan will detail both general and facility-specific methods to prevent a release of oil or hazardous materials to the environment, and will include measures to prevent the discharge of these materials with stormwater.

2.4 Conclusions

All clearing, grading, construction, and operation activities at the Property and Laydown Site will be conducted in accordance with both SWPPP and BMP practices to ensure minimal negative impacts to subsurface conditions and the surrounding areas. Prior to construction at the Project Development Area, the dilapidated, abandoned buildings and structures will demolished, and several piles of waste materials will be removed. These parameters will be developed in conjunction with the final clearing, grading, demolition, and construction plans, as well as the appropriate state and local permitting requirements and bylaws.

The Laydown Site will be temporarily developed as an unpaved parking area, and will be restored in order to continue its function as an agricultural field upon completion of the project. New York State Department of Agriculture and Markets and NYSDEC guidelines for these activities will be adhered to.

The project has been designed to be compatible with the Property's environmental resources and surrounding land uses to the greatest extent possible. Project design has taken advantage of the previously disturbed and currently unused industrial footprint, such that direct impacts to natural resources, have been minimized, and the entire portion of the Property west of the railroad track, will remain undisturbed during the construction and operation of the project.

2.5 References

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